Submitting the sample

Use permanent ink or pencil to complete a current *Plant Sample Information* form, which is available online at www.ncagr.gov/agronomi/forms.htm. Forms and sample envelopes are also available from local Cooperative Extension offices, agribusinesses, regional agronomists and the Agronomic Division laboratory. Fees are listed on the sample form and online at www.ncagr.gov/agronomi/fees.htm.

Pay attention to detail when filling out the information form. Be especially sure to provide all information requested in the shaded areas. Record planting date, and note any conditions—drought, disease, injury, pesticide or foliar nutrient applications—that might be relevant.

When identifying the plants that you sampled, give the exact name (common and scientific): e.g., flue-cured or burley tobacco. Give each sample a unique identifier that will help you remember the plants or area it corresponds to—such as HOUSE1, 15B, GOOD or BAD. You can use up to six letters and/or numbers. Put the identifier on both the sample information form and the sample envelope.

Diagnostic interpretations require more details than predictive. When sending matching soil, solution or waste samples, record matching sample IDs in the designated areas on the sample information form. Be sure grower name and address are exactly the same on all matching information forms. Ship all matching samples as a single package addressed to the NCDA&CS Agronomic Division Plant/Waste/Solution Section.

Place each tissue sample in a paper envelope, paper lunch bag or cardboard box so it can begin drying during transport. Do not use plastic bags because heat and moisture will cause decomposition, which can alter test results.

Interpreting the report

The lab analyzes samples and generates a report within two working days of their arrival. The prompt turnaround makes it possible for growers to take any corrective action needed to improve nutrient status and optimize yield. The report is immediately posted on the Agronomic Division's Web site and a copy mailed to the grower. A cover sheet that explains the technical terms and index values accompanies the report. Cover sheets and other information about plant analysis are also available on the Agronomic Division's Web site.

North Carolina Department of Agriculture and Consumer Services

Steve Troxler, Commissioner of Agriculture

Agronomic Division
Colleen M. Hudak-Wise, Ph.D., Director

www.ncagr.gov/agronomi/

(919) 733-2655

Mailing Address
1040 Mail Service Center
Raleigh NC 27699-1040

Physical Address [DHL, FedEx, UPS]
4300 Reedy Creek Road
Raleigh NC 27607-6465

Agronomic Sampling
Folder No. 5

prepared by
Brenda Cleveland, Michelle McGinnis
and Catherine Stokes

revised November 2008

Sampling for Plant Analysis

pictorial key to tissue sampling:
www.ncagr.gov/agronomi/pictorial.htm

The Agronomic Division analyzes plant tissue for nutrient content. It measures 11 of the essential nutrients required for plant growth. The plant analysis report

- indicates plant nutrient concentrations,
- identifies deficiencies and toxicities and
- provides recommendations for optimizing yield, quality and nutrient-use efficiency.

Tissue tests assess plant nutrient uptake while soil tests predict nutrient availability. The two tests are complementary as crop management tools, but each has limitations. For example, plant analysis cannot predict the need for lime; soil samples should be taken for this purpose. Soil testing is not the best indicator of nutrients that leach easily, such as nitrogen and sulfur. Tissue tests measure the micronutrients boron, iron and molybdenum, whereas soil tests do not.

Deciding when to sample

To monitor plant nutrient status most effectively, sample during the growth stages recommended for your specific crop (Table 1). Take predictive samples weekly or biweekly during critical periods, depending on management intensity and crop value. Any time you suspect a nutrient-related problem, however, submit diagnostic tissue samples to identify the problem.

Although exact timing is not critical, the best time to collect samples is between mid-morning and mid-afternoon. Nitrate nitrogen levels are especially subject to variation, depending on time of day and environmental conditions (drought, cloud cover). Keep samples free of soil and other contaminants that can affect results.